

1743

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Nathan S. Lewis et al. Art Unit : 1743
Serial No. : 09/842,204 Examiner :
Filed : April 24, 2001
Title : SPATIOTEMPORAL AND GEOMETRIC OPTIMIZATION OF SENSOR
ARRAYS FOR DETECTING ANALYTES FLUIDS

Commissioner for Patents
Washington, D.C. 20231

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INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Applicants call attention to the attached Information
Disclosure Statement and documents listed on form PTO-1449.

This filing is being made before the receipt of a first
Office action on the merits. No fee is required.

Each of the documents is either in the English language or
includes an English language abstract, hence no concise
explanation is necessary per Rule 97(c).

Consideration of the foregoing and enclosures plus the
return of a copy of the enclosed form PTO-1449 with the
Examiner's initials in the left column per MPEP 609 are
earnestly solicited along with an early action on the merits.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

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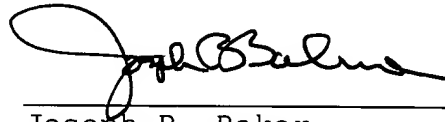
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Respectfully submitted,

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 Substitute Form PTO-1449
 (Modified)

 U.S. Department of Commerce
 Patent and Trademark Office

 Attorney's Docket No.
 06618-896001

 Application No.
 09/842,204

**Information Disclosure Statement
 by Applicant**

(Use several sheets if necessary)

 Applicant
 Nathan S. Lewis et al.

 Filing Date
 April 24, 2001

 Group Art Unit
 1743

FEE \$1.98(b))

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	6,350,369	Feb 26, 2002	Lewis et al.			
	AB	6,315,956	Nov 13, 2001	Foulger			
	AC	6,305,214	Oct 23, 2001	Schattke et al.			
	AD	6,290,911	Sept 18, 2001	Lewis et al.			
	AE	6,234,004	May 22, 2001	Revsbech et al.			
	AF	6,170,318	Jan 9, 2001	Lewis			
	AG	6,134,950	Oct 24, 2000	Forster et al.			
	AH	6,134,461	Oct 17, 2000	Say et al.			
	AI	6,103,033	Aug 15, 2000	Say et al.			
	AJ	6,093,308	Jul 25, 2000	Lewis et al.			
	AK	6,085,576	Jul 11, 2000	Sunshine et al.			
	AL	6,023,163	Feb 8, 2000	Flaum et al.			
	AM	6,013,229	Jan 11, 2000	Lewis et al.			
	AN	6,010,616	Jan 4, 2000	Lewis et al.			
	AO	5,980,723	Nov 9, 1999	Runge-Marchese et al.			
	AP	5,959,191	Sept 28, 1999	Lewis et al.			
	AQ	5,958,787	Sept 28, 1999	Schonfeld et al.			
	AR	5,951,846	Sept 14, 1999	Lewis et al.			
	AS	5,913,235	June 15, 1999	Silenius et al.			
	AT	5,911,872	June 15, 1999	Lewis et al.			
	AU	5,891,398	April 6, 1999	Lewis et al.			
	AV	5,879,827	March 9, 1999	Debe et al.			
	AW	5,876,577	March 2, 1999	McAleer et al.			
	AX	5,846,744	Dec 8, 1998	Athey et al.			
	AY	5,807,701	Sept 15, 1998	Payne et al.			
	AZ	5,841,021	Nov 24, 1998	De Castro et al.			
	AAA	5,804,100	Sept 8, 1998	Angelopoulos et al.			

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Information Disclosure Statement by Applicant (Use several sheets if necessary)		Applicant Nathan S. Lewis et al.	
		Filing Date April 24, 2001	Group Art Unit 1743

(37 C.F.R. § 1.98(b))

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	ABB	5,801,297	Sept 1, 1998	Mifsud et al.			
	ACC	5,788,833	Aug 4, 1998	Lewis et al.			
	ADD	5,766,934	June 16, 1998	Guisseppi-Elie			
	AEE	5,756,879	May 26, 1998	Yamagishi et al.			
	AFF	5,705,265	Jan 6, 1998	Clough et al.			
	AGG	5,698,089	Dec 16, 1997	Lewis et al.			
	AHH	5,674,752	Oct 7, 1997	Buckley et al.			
	AII	5,653,939	Aug 5, 1997	Hollis et al.			
	AJJ	5,627,329	May 6, 1997	Krishnan et al.			
	AKK	5,591,898	Jan 7, 1997	Mayer			
	ALL	5,571,401	Nov 5, 1996	Lewis et al.			
	AMM	5,536,473	Jul 16, 1996	Monkman et al.			
	ANN	5,519,147	May 21, 1996	Swager et al.			
	AOO	5,505,093	April 9, 1996	Giedd et al.			
	APP	5,498,372	Mar 12, 1996	Hedges			
	AQQ	5,466,348	Nov 14, 1995	Holm-Kennedy			
	ARR	5,425,869	June 20, 1995	Noding et al.			
	ASS	5,417,100	May 23, 1995	Miller et al.			
	ATT	5,415,893	May 16, 1995	Wiersma et al.			
	AUU	5,407,699	April 18, 1995	Myers			
	AVV	5,352,574	Oct 4, 1994	Guisseppi-Elie			
	AWW	5,335,555	Aug 9, 1994	Guizot et al.			
	AXX	5,302,274	April 12, 1994	Tomantachger et al.			
	AYY	5,286,414	Feb 15, 1994	Kampf et al.			
	AZZ	5,278,501	Jan 11, 1994	Guilfoyle			
	AAAA	5,253,329	Oct 12, 1993	Villareal et al.			
	ABBB	5,250,264	Oct 5, 1993	Walt et al.			

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(Use several sheets if necessary)

(37 CFR § 1.98(b))

Applicant
Nathan S. Lewis et al.Filing Date
April 24, 2001Group Art Unit
1743**U.S. Patent Documents**

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	ACCC	5,246,846	Sept 21, 1993	Pittner et al.			
	ADDD	5,225,110	July 6, 1993	Kathirgamanathan			
	AEEE	5,217,692	June 8, 1993	Rump et al.			
	AFFF	5,215,820	June 1, 1993	Hosokawa et al.			
	AGGG	5,212,447	May 18, 1993	Paltiel			
	AHHH	5,159,829	Nov 3, 1992	Mayer et al.			
	AIHH	4,927,502	May 22, 1990	Reading et al.			
	AJJJ	4,914,608	April 3, 1990	LeBihan et al.			
	AKKK	4,911,801	Mar 27, 1990	Pons et al.			
	ALLL	4,772,559	Sept 20, 1988	Preti et al.			
	AMMM	4,719,423	Jan 12, 1988	Vinegar et al.			
	ANNN	4,674,320	June 23, 1997	Hirschfeld			
	AOOO	4,644,154	Feb 17, 1987	Brogardh et al.			
	APPP	4,424,487	Jan 3, 1984	Lauffer et al.			
	AQQQ	4,349,664	Sept 14, 1982	Matsumura et al.			
	ARRR	4,225,410	Sept 30, 1980	Pace et al.			
	ASSS	4,172,721	Oct 30, 1979	Byrne			
	ATTT	3,677,071	July 18, 1972	Martin et al.			
	AUUU	6,017,440	Jan 25, 2000	Lewis et al.			
	AVVV	5,469,369	Nov 21, 1995	Rose-Pehrsson et al.			
	AWWW	6,028,608	Feb 22, 2000	Jenkins			

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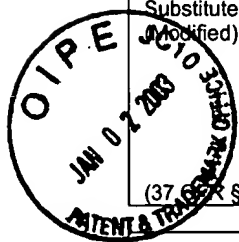
Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AXXX	0 878 711A1	Nov 18, 1998	EP				
	AYYY	0 717 418A2	June 19, 1996	EP				
	AZZZ	11-94784	April 9, 1999	JP			Abstract only	

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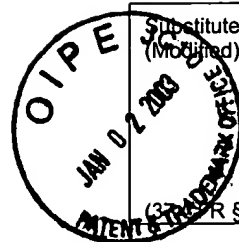
Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AAAAA	63-308807	Dec 16, 1988	JP			Abstract only	
	ABBBB	63-120733	May 25, 198	JP			Abstract only	
	ACCCC	62-257968	Nov 10, 1987	JP			Abstract only	
	ADDDD	WO 00/33062	June 8, 2000	WIPO				
	AEEEE	WO 00/26638	May 11, 2000	WIPO				
	AFFFF	WO 00/00808	Jan 6, 2000	WIPO				
	AGGGG	WO 99/67627	Dec 29, 1999	WIPO				
	AHHHH	WO 99/66304	Dec 23, 1999	WIPO				
	AIIII	WO 99/61902	Dec 2, 1999	WIPO				
	AJJJJ	WO 99/53300	Oct 21, 1999	WIPO				
	AKKKK	WO 99/53287	Oct 21, 1999	WIPO				
	ALLLL	WO 99/47905	Sept 23, 1999	WIPO				
	AMMMM	WO 99/40423	Aug 12, 1999	WIPO				
	ANNNN	WO 99/08105	Feb 18, 1999	WIPO				
	AOOOO	WO 99/00663	Jan 7, 1999	WIPO				
	APPPP	WO 96/07901	Mar 14, 1996	WIPO				
	AQQQQ	WO 95/08113	Mar 23, 1995	WIPO			Abstract only	
	ARRRR	WO 94/24561	Oct 27, 1994	WIPO				
	ASSSS	WO 90/09027	Aug 9, 1990	WIPO				
	ATTTT	WO 86/01599	Mar 13, 1986	WIPO				
	AUUUU							

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AVVVV	Baldacci, et al., "Discrimination of Wine Using Taste and Smell Sensors", Sensors and Materials, Vol. 10, No. 3, pp. 185-200 (1998)

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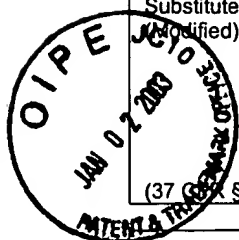
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Examiner Initial	Desig. ID	Document
	AWWW	Bodenhofer, et al., "Chiral Discrimination By Simple Gas Sensors", <u>Transducers</u> , 1997 International Conference on Solid-State Sensors and Actuators, Digest of Technical Papers, Transducers 97, Chicago, IL, June 16-19, 1997, vol. 2, pp. 1391-1394 IEEE,
	AXXX	Bodenhofer et al., "Performances of Mass-Sensitive Devices for Gas Sensing: Thickness Shear Mode and Surface Acoustic Wave Transducers", <u>Anal. Chem.</u> , Vol. 68, No. 13, pp. 2210-2218 (July 1, 1996)
	AYYY	Breheret et al., "On-line differentiation of mushrooms aromas by combined Headspace/multi-odour gas sensors devices", <u>Bioflavour</u> 95, Dijon, France (Les Colloques, no. 75), pp. 103-107, (February 14-17, 1995)
	AZZZ	Bruschi et al., "Gas sensing with conducting polymer thin film resistors obtained from commercial photoresist patterns", <u>Proceedings of the First Italian Conference</u> , (1996), pp 69-73
	AAAAA	Butterworth, et al., "Zeta Potential measurements on Conducting Polymer-Inorganic Oxide Nanocomposite Particles", <u>Journal of Colloid and Interface Science</u> , Vol. 174, pp. 510-517, (1995)
	ABBBB	Casella, et al., "Copper dispersed into polyaniline films as an amperometric sensor in alkaline solutions of amino acids and polyhydric compounds", <u>Analytica Chimica Acta</u> , Vol 335, pp. 217-225, (1996)
	ACCCC	Chandiok et al., "Screening for bacterial vaginosis: a novel application of artificial nose technology", <u>J. Clin. Pathol.</u> , Vol. 50, pp. 790-791 (1997)
	ADDDDD	Costello, et al., "Novel composite organic-inorganic semiconductor sensors for the quantitative detection of target organic vapours", <u>J. Mater. Chem.</u> , Vol 6, no. 3, pp. 289-294 (1996)
	AEEEE	Dickinson, et al., "Generating Sensor Diversity through Combinatorial Polymer Synthesis", <u>Anal. Chem.</u> Vol. 69, pp. 3413-3418, 1997
	AFFFF	Doleman, et al., "Quantitative Study of the Resolving Power of Arrays of Carbon Black-Polymer composites in Various Vapor-Sensing Tasks", <u>Anal. Chem.</u> , Vol 70, pp. 4177-4190, 1998
	AGGGG	Domansky, et al., "Development and Calibration of Field-Effect Transistor-Based Sensor Array for Measurement of Hydrogen and Ammonia Gas Mixtures in Humid Air", <u>Anal. Chem.</u> , Vol. 70, No. 3, pp. 473-481 (February 1, 1998)
	AHHHH	Forsyth, et al., "Dielectric properties of conductive composites at microwave frequencies", <u>New Horizons for Materials</u> , 1995, pp. 279-285 (1995)
	AIIII	Jiang, et al., "Preparation and Properties of Organic Polymer Sub-Micrometer Function Films", <u>Electrets</u> , 1996, 9 th International Symposium on Shanghai, China, September 25-30, 1996, NY, pp. 678-683
	AJJJJ	Laranjeira et al., "A conductimetric system based on polyaniline for determination of ammonia in fertilizers", <u>Analytical Letters</u> , Vol. 30, no. 12, pp. 2189-2209 (1997)
	AKKKK	Lefebvre, et al., "Chemical Synthesis, Characterization, and Electrochemical Studies of Poly (3,4-ethylenedioxythiophene)/Poly(styrene-4-sulfonate) Composites", <u>Chem. Mater.</u> , Vol. 11, No. 2, pp. 262-268 (1999)
	ALLLL	Lipman, "E-noses nose out traditional odor-detection equipment", <u>EDN</u> , pp. 59-66, December 17, 1998
	AMMMM	Luinge, et al., "Trace-level identity confirmation from infrared spectra by library searching and artificial neural networks", <u>Analytica Chimica Acta</u> , Vol. 345, pp. 173-184, 1997
	ANNNN	Meister et al., "Polymer-Oxide-Silicon-Field-Effect-Transistor (POSFET) as sensor for gases and vapors", <u>Electrochemical Society Proceedings</u> , Vol 97-9, pp 16-22

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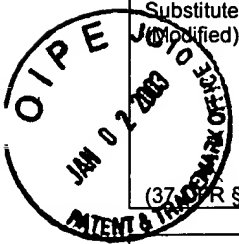
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Other Documents (include Author, Title, Date, and Place of Publication)

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	AOOOOO	Moy et al., "Transient signal modelling for fast odour classification", <u>Bioflavour</u> 95, Dijon, France, (Les Colloques, no. 75), pp. 55-58, (February 14-17, 1995)
	APPPPP	Neaves et al., "A new generation of integrated electronic noses", <u>Sensors and Actuators</u> , B 26-27, pp. 223-231 (1995)
	AQQQQQ	Partch, et al., "Conducting Polymer Composites", American Chemical Society, pp. 368-386 (1992)
	ARRRRR	Paulsson, et al., "Breath alcohol, multi sensor arrays and electronic noses", <u>SPIE</u> , Vol. 2932, pp. 84-90 (3/97)
	ASSSSS	Preti, "Analysis of lung air from patients with bronchogenic carcinoma and controls using gas chromatography-mas spectrometry", <u>Journal of Chromatography</u> , Vol. 432, pp 1-11 (1988)
	ATTTTT	Rajeshwar, et al., "Polypyrrole composites containing platinum or carbon black: from synthesis to novel applications", <u>Polymer Preprints</u> , American Chemical Society, Vol. 35, No. 1, pp. 234-235, March, 1994)
	AUUUUU	Simenhoff, et al. "Biochemical profile of uremic breath", <u>The New England Journal of Medicine</u> , Vol. 297, no. 3, pp. 132-135 (July 21, 1977)
	AVVVVV	Stussi, et al., "Chemoresistive conducting polymer-based odour sensors: influence of thickness changes on their sensing properties", <u>Sensors and Actuators</u> , Vol. B43, pp. 180-185, (1997)
	AWWWWW	Thackeray, et al., "Chemically Responsive Microelectrochemical Devices Based on Platinized Poly (3-methylthiophene): Variation in conductivity with Variation in Hydrogen, Oxygen, or pH in Aqueous solution", February 14-17, 1995, <u>J. Phys. Chem.</u> February 14-17, 1995, Vol. 90, no. 25, pp. 6674-6679 (November 25, 1986)
	AXXXXX	Tourillon, et al., "Dispersive X-Ray Spectroscopy for Time-Resolved In Situ Observatin of Electrochemical Inclusion of Metallic Clusters within a conducting polymer", <u>Physical Review Letters</u> , Vol. 57, No. 5, pp. 603-606 (August 4, 1986)
	AYYYYY	Udrea et al., "Design of a silicon microsensor array device for gas analysis", <u>Microelectronics Journal</u> , Vol. 27, no. 6, pp. 449-457 (1996)
	AZZZZZ	Wampler, "Composites of Polypyrrole and Carbon Black. 2. Electrosynthesis, Characterization, and Influence of Carbon Black Characteristics", <u>Chem. Mater.</u> Vol. 7, No. 3, pp. 585-592 (1995)
	AAAAAA	Veciana-Nogues, et al., "Biogenic Amines as Hygienic Quality Indicators of Tuna, Relationships with Microbial Counts, ATP-Related Compounds, Volatile Amines and Organoleptic Changes", <u>J. Agric. Food Chem.</u> , vol. 45, No. 6, pp. 2036-2041 (1997)
	ABBBBB	Yamoto et al., "A new method for dispersing palladium icroparticles in conducting polymer films and its application to biosensors", <u>Synthetic Metals</u> , Vol. 87, pp. 231-236, (1997)
	ACCCCC	Slater, et al., "Multi-layer Conducting Polymer Gas Sensor Arrays for Olfactory Sensing", <u>Analyst</u> , Vol. 118, pp. 379-384 (April, 1993)
	ADDDDD	Pearce, et al., "Electronic Nose for Monitoring the Flavour of Beers", <u>Analyst</u> , Vol. 118, pp. 371-377 (April, 1993)
	AEEEEEE	Lonergan, et al., "Array-Based Vapor Sensing Using chemically Sensitive, Carbon Black-Polymer Resistors", <u>Chem. Mater.</u> , Vol. 8, No. 9, pp. 2298-2312, (November 9, 1996)
	AFFFFFFF	Freund, et al., "A chemically diverse conducting polymer-based 'electronic nose'", <u>Proc. Natl. Acad. Sci.</u> , Vol. 92, pp. 2652-2656 (March, 1995)
	AGGGGG	Wehrens, et al., "Calibration of an array of voltammetric microelectrodes", <u>Analytica chimica Acta.</u> , No. 334, pp. 93-101, 1996

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	AHHHHH	Williams, et al., "Resolving combustible gas mixtures using gas sensitive resistors with arrays of electrodes", <u>J. Chem. Soc., Faraday Trans.</u> , Vol. 92, No. 22, pp. 4497-4504, 1996

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